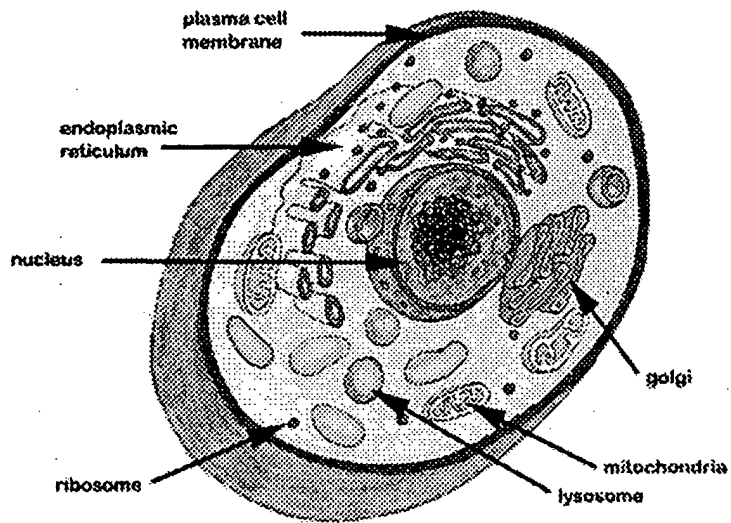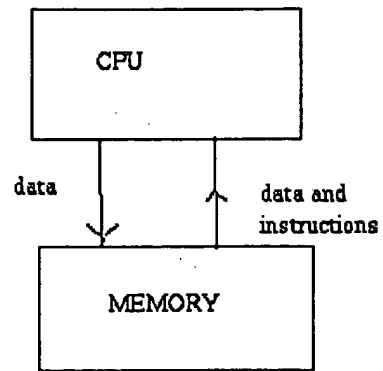Figure 1.1-1.

Eukaryotic Cell Diagram

Figure 2.2-1 The Von-Neumann Machine. Illustrates the relationship between memory, data and instructions.

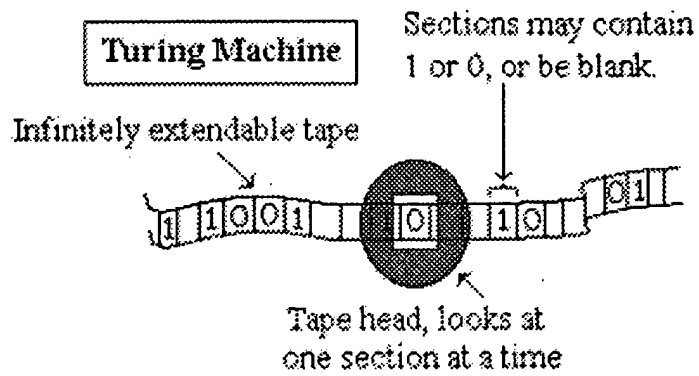**Turing Machine**

Sections may contain 1 or 0, or be blank.

Infinitely extendable tape

Tape head, looks at one section at a time

Figure 2.2-2 Turing Machine.   Illustrates the concept of an infinite tape with a sequence of binary data.   Ref: http://www.brunel.ac.uk/depts/AI/alife/al-turin.htm
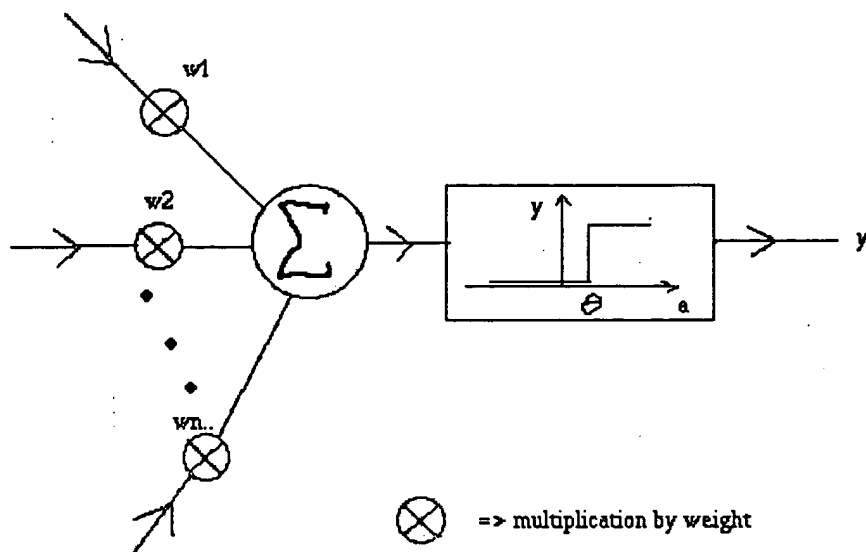
Figure 2.3-1, Neuron for Neural Net Computing, from (Gurney, 2002). Illustrates the method of computation at one node of a neural network.

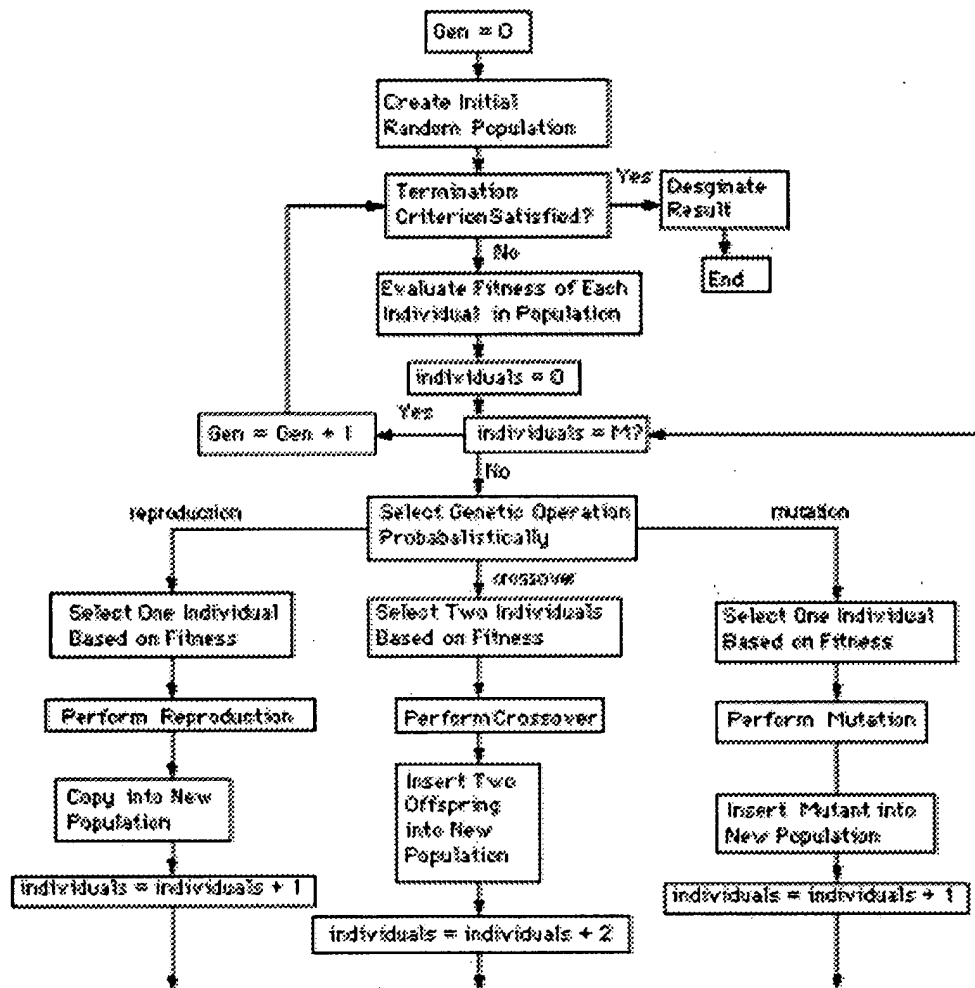# Flowchart for Genetic Programming

Figure 2.3-2. Flowchart of Genetic Programming. This figure shows the general process of genetic programming including all loops and branches.
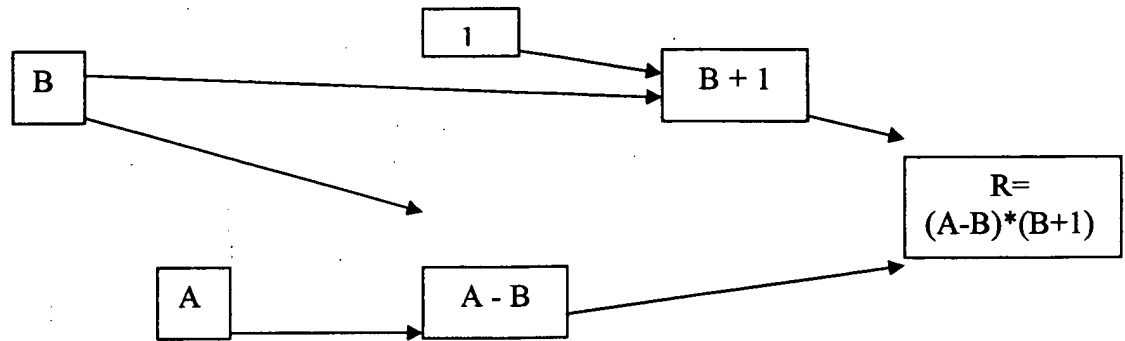
Figure 2.3-3. Dataflow Computing. This diagram illustrates the concept of the flow of operands through a dataflow machine, rather than the classical "fetch and execute".
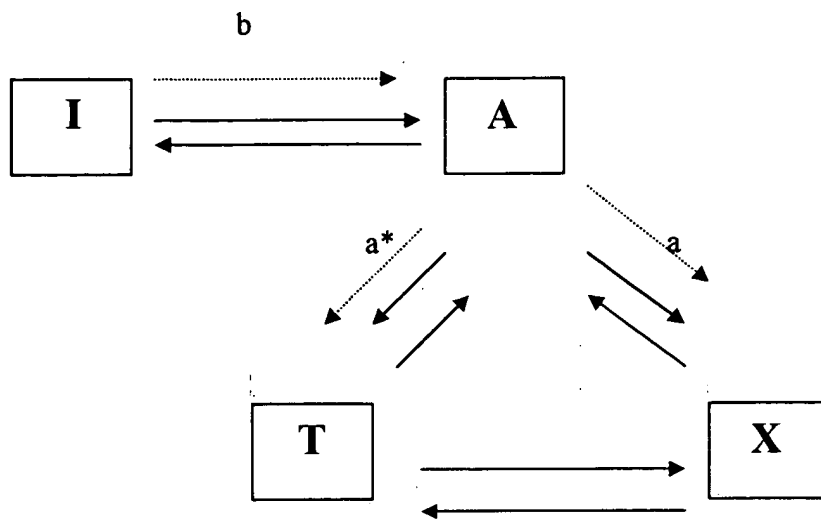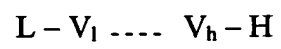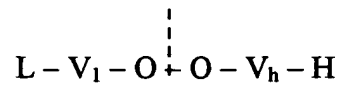
Figure 2.4-1. Regulated Isomerase State Diagram. Shows the flow of information for the Marijuan (1994) model.

$$L - V_l \text{ .... } V_h - H \qquad\qquad L - V_l - O \dashv O - V_h - H$$

| JOIN
ENZYME | | BREAK
ENZYME
$L - V_0 - H$ |

Figure 2.4-2. Shackleton's Join and Break Enzyme. Shows the operators associated with each artificial enzyme.
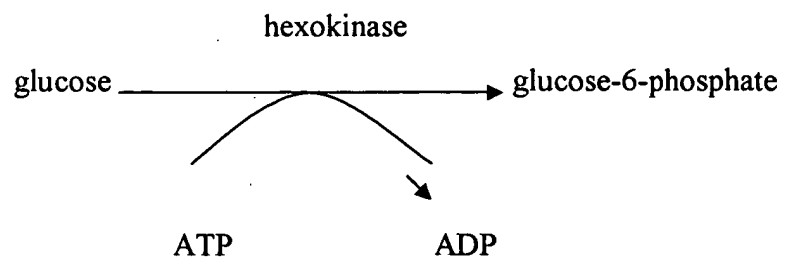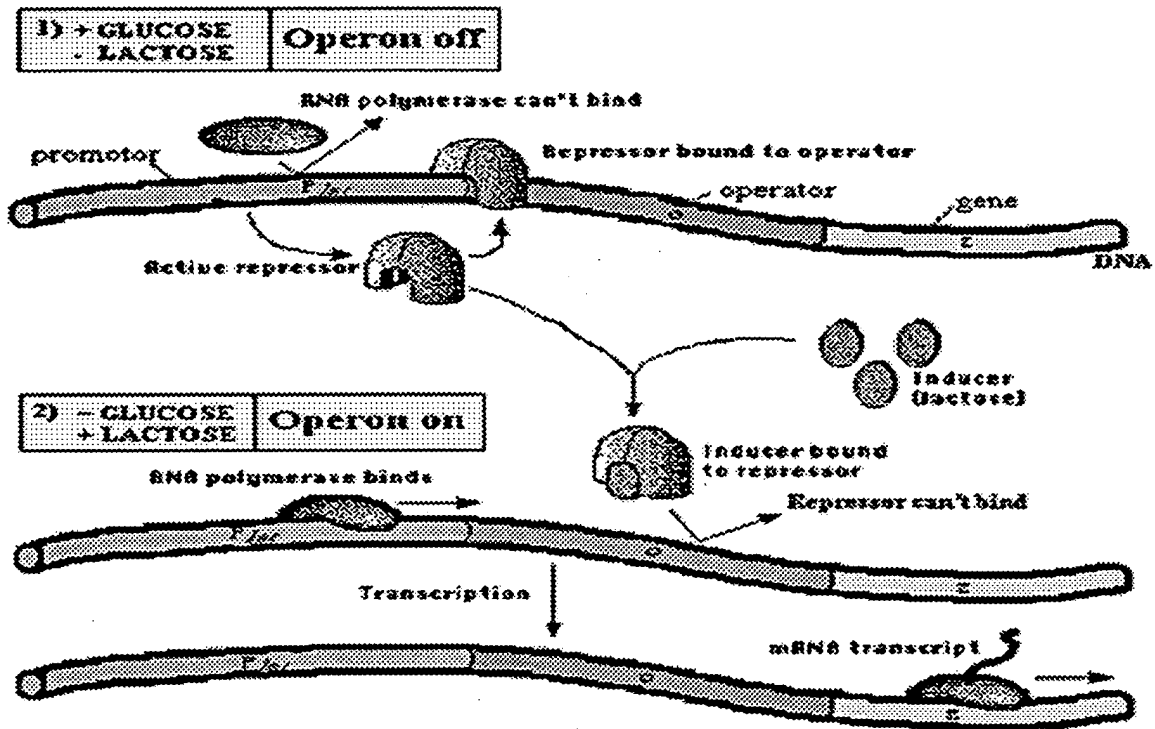
Figure 3.1-1 First Reaction in Glycolysis.

Figure 3.1-2 Lac Operon

Induction of the *lac* Operon

From Access Excellence (2003)

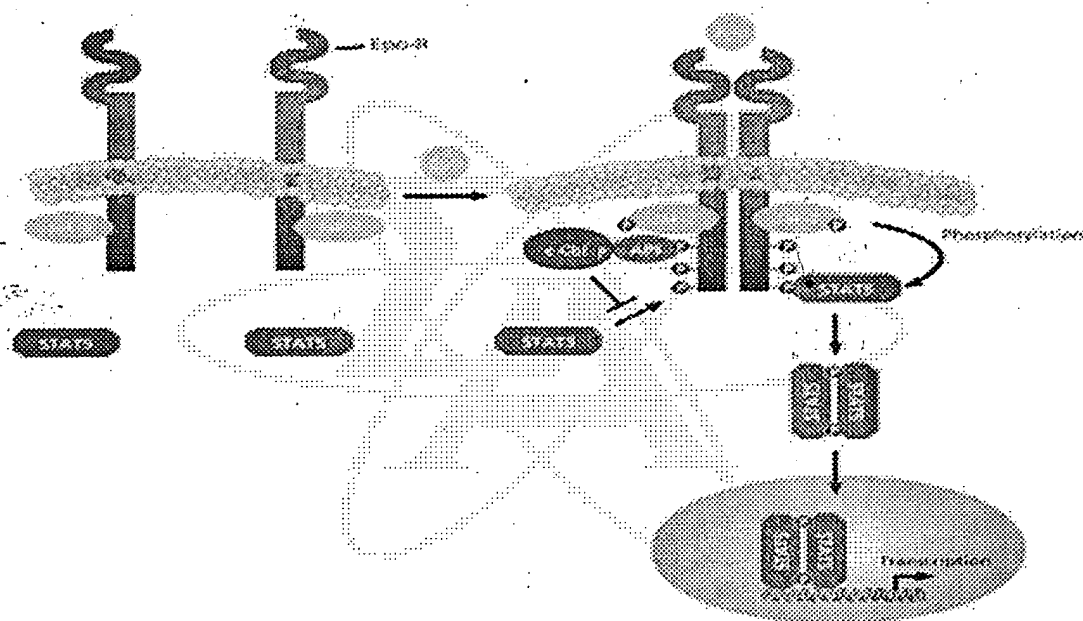Figure 3.1-3. The JAK STAT Signal Transduction Pathway.
(Sigma-Aldrich, 2003)

Figure 3.2-1. Illustration of a Node

```
A   A      B        C    AB            CCCA          REGION 1

  B
        C                RULE1:  X, Y → XY



RULE2:  XYZ → XZ, Y


B     B    C                    A    B      A    A

                                RULE3:  (+A & –B) OR (+B & -A)
  C      CCB
                                        REGION 2
```
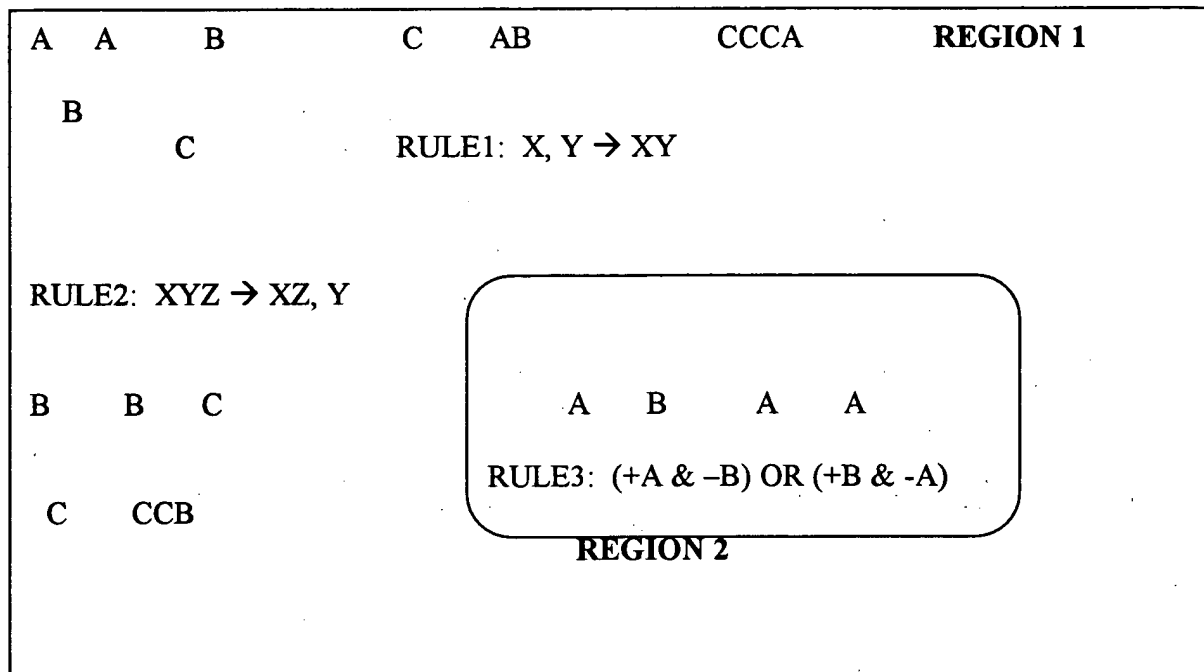
Figure 3.3-1. Illustration of GABA Ion I/O Instruction
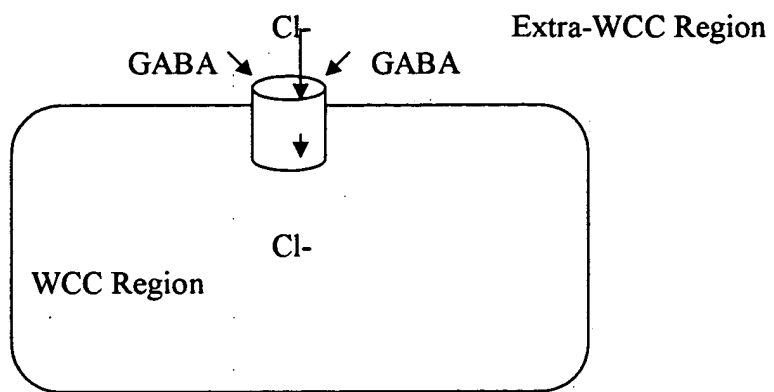
Figure 3.3-2 Second Reaction in Glycolysis.
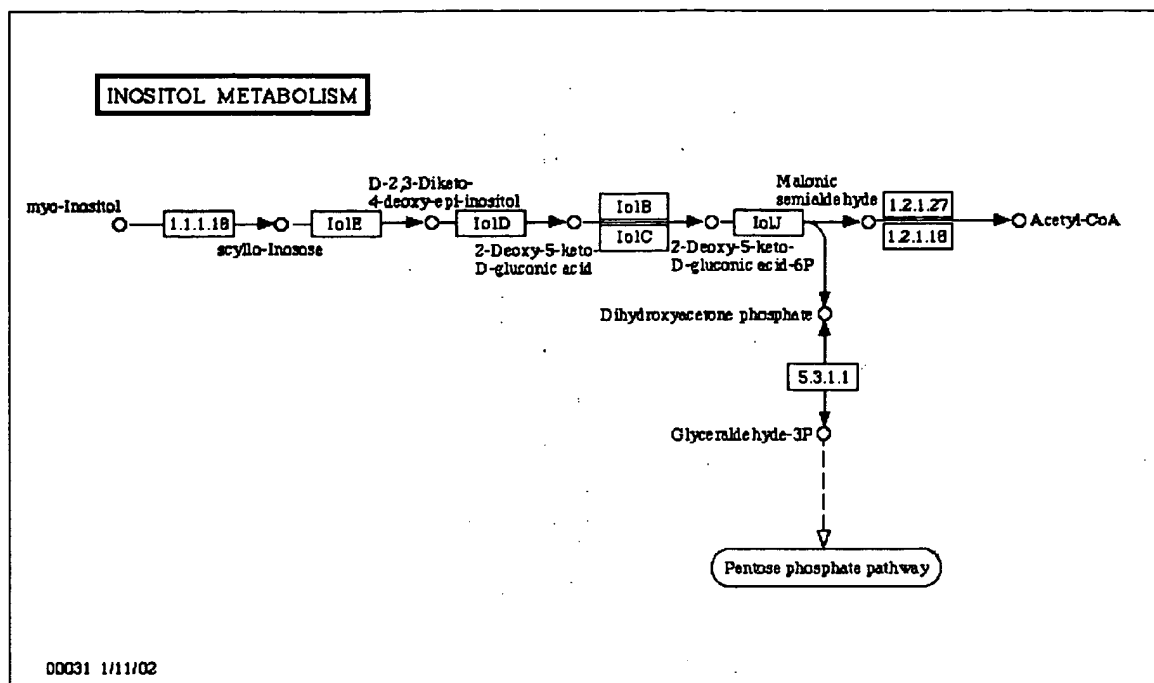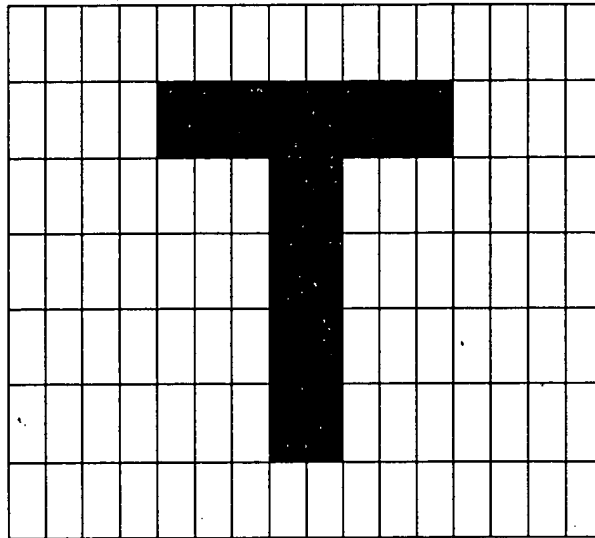
Gly-2

glucose-6-phosphate $\xrightarrow{\hspace{4cm}}$ fructose-6-phosphate
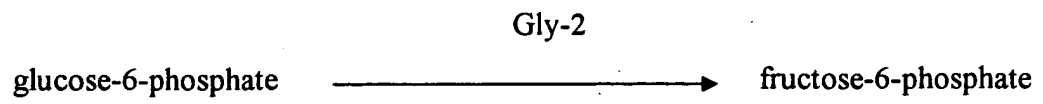
Figure 3.3-3 Illustration of KEGG Pathways for Instruction Compilation

Figure 3.6.2-1. Binary Image of a T.

Figure 4.1.1-1 Illustration of CA